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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,071	06/19/2006	Bert Braune	12406-142US1 P2003,0442 U	7131

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EXAMINER	
EFTEKHARZADEH, ARDESHIR	
ART UNIT	**PAPER NUMBER**
4131	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/564,071	BRAUNE ET AL.	
	Examiner	Art Unit	
	Ardeshir Eftekharzadeh	2809	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01/10/2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10 Jan 2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections – Minor Informalities

Claims 6-8 recite the limitations "d_{50}" and "Q_0" in the first line of each claim. There is insufficient antecedent basis for this limitation in the claim. Examiner has examined the application under the assumption that d_{50} characterized the size of the particles and has given Q_0 no patentable weight.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen, US Patent Number 5,962,971, henceforth referred to as Chen, in view of Kambe et al, US Patent 6,099,798, henceforth referred to as Kambe et al.

Regarding **claim 1**, Chen in Fig 3 and column 2, lines 46-63 teaches a LED structure which obviously emits light, a form of electromagnetic radiation. Therefore "one primary radiation source" reads on LED structure of fig. 2. Chen in column 2, line 52-54, teaches second resin 4 which previously in column 2, lines discloses that there is a substance There is a fluorescent material capable of changing the length light waves mixed with the second resin 4, which is a thin film. Therefore "luminescence conversion

element" reads on the second resin 4. It then teaches in column 2, lines 53-55, a filter layer 7 for filtering out the unnecessary light fluxes. Furthermore in column 3, lines 1-2, Chen teaches that the filter layer 7 is added for preventing leakage of ultra violet rays which may be harmful to the sealing resin (a third resin 51, and also for avoiding the undesired exposure of the human body to ultra violet rays. Hence "spectral subregion of an unwanted radiation" reads on ultra violet rays.

Although Chen teaches a filter element for filtering out the unnecessary and harmful ultra violet rays, it does not teach or disclose the composition of the filter element. Specifically Chen is silent on whether the filter element is made of "plurality of nanoparticles" or not. Kambe et al, however, discloses in Abstract lines 1-4, that Nanoscale UV absorbing particles are described that have high UV absorption cross sections while being effectively transparent to visible light. These particles can be used to shield individuals from harmful ultraviolet radiation.. Kambe et al beginning with column 11, line 9, teaches that Blocking out UV light from a protected environment can involve blocking UV light from a natural (i.e., solar) light source or from artificial light sources. Blocking UV light from natural light generally involves production of a window that selectively is transparent for visible light while absorbing UV light. Windows are any surfaces through which light is transmitted, regardless of shape or location. The TiO_2, ZnO , ZnO_2 and CeO_2 particles described above are particularly suitable for this application because of their relative transparency with respect to visible light. The window can be made from an inorganic glass such as a silicon based glass, an organic polymer such as high density polyethylene and polyesters, and the like. The particles

window material (FIG. 7). A coating can be applied in a variety of ways such as spray coating of a solvent dispersion, spin coating and deposition of a particle stream. Therefore Kambe et al teaches that a coated window or a layer with a substance that contains nano-particles, that have the advantage of being transparent in visible light but to block the ultra violet light. Kambe et al in Fig. 8 incorporates such a substance into the structure of a light source to block harmful ultra-violet rays.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to build the filter out of a coating on a window where the coating is made of nano-particles for the purpose of blocking the harmful ultraviolet rays while providing for a window that is transparent to visible light.

Regarding **claim 2**, Chen in column 2, line 60 teaches that the light source emits radiation with the wavelength in the range of ultraviolet rays with 360-380 nm. Therefore "primary radiation" reads on this and since Chen has indicated that this radiation has to be converted to visible using fluorescent material or filtered out, this is also the unwanted radiation.

Regarding **claim 3**, Chen in column 2, line 60 teaches that the light source emits radiation with the wavelength in the range of ultraviolet rays with 360-380 nm that is less than 420 nm.

Regarding **claim 4,** in column 2, line 46, Chen teaches that the light source is a LED, otherwise known as a Light Emitting Diode. Chen in column 2, line 60 teaches that the light source emits radiation with the wavelength in the range of ultraviolet rays with 360-380 nm. "primary radiation source" comprising "at least one luminescent diode that in operation emits UV radiation" reads on LED structure taught in Chen.

Regarding **claim 5,** Kambe et al, in column 12 lines 16-24 teaches that to design appropriate block for a particular light source, the UV spectrum of the source is first determined. One can then select the UV absorbing particles to adequately absorb the UV light from the source. For use in absorbing UV light from natural sun light or UV components of light from an artificial light source, preferably a coating of UV absorbing particles preferably absorbs greater than about 75 percent and more preferably greater than about 90 percent of the UV light. Therefore the combination of teachings of Chen and Kambe et al, will produce a coating that would absorb more than 50% of the "unwanted radiation" and hence, would reduce the unwanted radiation by more than 50%.

Regarding **claim 6**, Kambe et al in column 9, lines 51-56, teaches that it is preferable for the sizes of metal oxide particles to be from about 5 nm to 50 nm. This range overlaps with the range of "less than or equal to 25 nm and greater than or equal to 1 nm" and therefore the limitation "nanoparticles" with the size in the claimed range reads on metal oxide particles with the sizes taught in Kambe et al.

Regarding **claim 7,** Kambe et al in column 9, lines 51-56, teaches that it is preferable for the sizes of metal oxide particles to be from about 5 nm to 50 nm. This range overlaps with the range of "less than or equal to 25 nm and greater than or equal to 1 nm" and therefore the limitation "nanoparticles" with the size in the claimed range reads on metal oxide particles with the sizes taught in Kambe et al.

Regarding **claim 8**, Chen , in column 2, line 60 teaches that the light source emits radiation with the wavelength in the range of ultraviolet rays with 360-380 nm. One twentieth of this range is 18 nm-19 nm. Kambe et al in column 9, lines 51-56, teaches that it is preferable for the sizes of metal oxide particles to be from about 5 nm to 50 nm. This range overlaps with the range of 18-19 nm and therefore the limitation "nanoparticles" with the size in the claimed range reads on metal oxide particles with the sizes taught in Kambe et al.

Regarding **claim 9**, Kambe et al in column 9, line 51-52, teaches the properties of the particles. Kambe et al teaches a collection of preferred metal oxide particles, such as titanium dioxide, zinc dioxide or cerium dioxide particles.

Regarding **claim 10**, Kambe et al in column 9, line 51-52, teaches the properties of the particles. Kambe et al teaches a collection of preferred metal oxide particles, such as titanium dioxide, zinc dioxide or cerium dioxide particles.

Regarding **claim 11,** Kambe et al in column 11, lines 19-23, teaches a window that can be made from an inorganic glass such as a silicon based glass, an organic polymer such as high density polyethylene and polyesters, and the like. The particles can be placed as a coating on the window or the particles can be dispersed within the window material (FIG. 7). "the matrix material" reads on an organic polymer such as high density polyethylene and polyesters, and the like as taught by Kambe et al.

Regarding **claim 12,** Kambe et al in column 11, lines 19-23, teaches a window that can be made from an inorganic glass such as a silicon based glass, an organic polymer such as high density polyethylene and polyesters. Examiner takes official notice that there are transparent polyethylene which can be used as epoxy and therefore the teachings in Kambe et al can be used to make a window that is transparent to visible light and by virtue of metal oxide particles taught in Kambe et l to be dispersed in the material, is opaque to UV light.

Regarding **claim 13**, Kambe et al in column 11, lines 19-23, teaches a window that can be made from an inorganic glass such as a silicon based glass. Therefore "matrix material comprising a group consisting of silicone, spin-on glasses, silicon compounds and polymers" reads on silicon based glass.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ardeshir Eftekharzadeh whose telephone number is (571)270-3262. The examiner can normally be reached on M-Th 7:30 am to 6:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian T. Pendleton can be reached on (571)272-7527. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BRIAN TYRONE PENDLETON
SUPERVISORY PATENT EXAMINER

A.E.